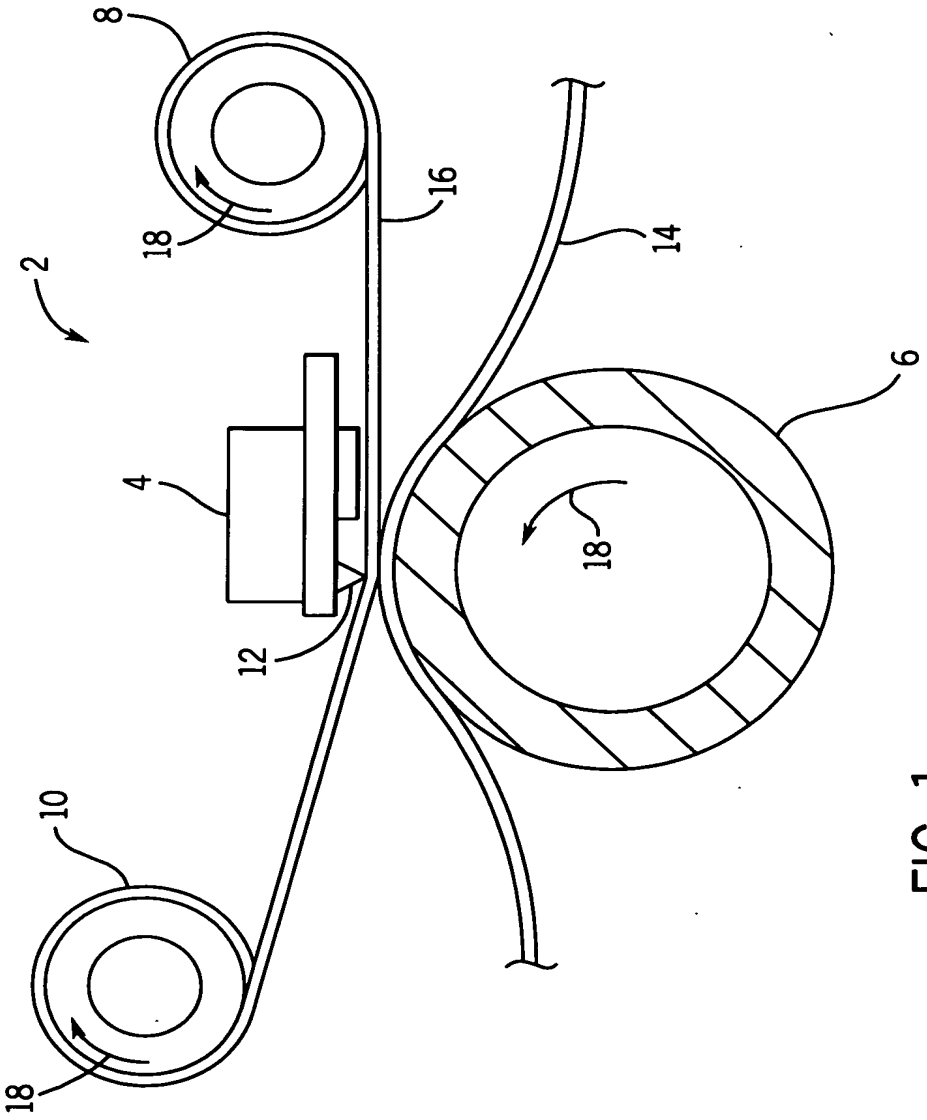


FIG. 1

CURRENT RASTER LINE	
W	1
X	1
Y	0
Z	1

FIG. 15

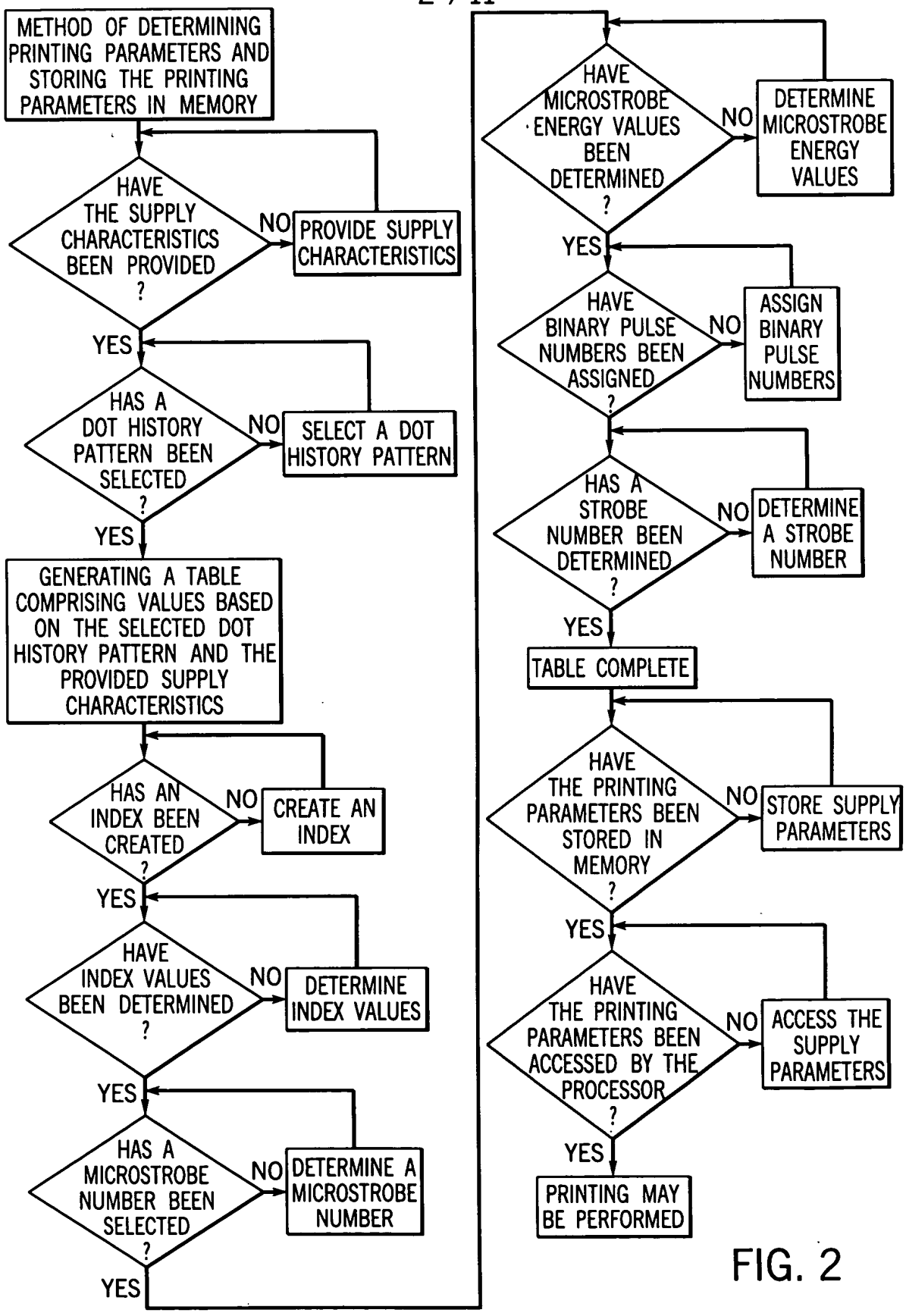

METHOD OF DETERMINING PRINTING PARAMETERS AND STORING THE PRINTING PARAMETERS IN MEMORY
HAVE THE SUPPLY CHARACTERISTICS BEEN PROVIDED ?
NO
PROVIDE SUPPLY CHARACTERISTICS
YES
HAS A DOT HISTORY PATTERN BEEN SELECTED ?
NO
SELECT A DOT HISTORY PATTERN
YES
GENERATING A TABLE COMPRISING VALUES BASED ON THE SELECTED DOT HISTORY PATTERN AND THE PROVIDED SUPPLY CHARACTERISTICS
HAS AN INDEX BEEN CREATED ?
NO
CREATE AN INDEX
YES
HAVE INDEX VALUES BEEN DETERMINED ?
NO
DETERMINE INDEX VALUES
YES
HAS A MICROSTROBE NUMBER BEEN SELECTED ?
NO
DETERMINE A MICROSTROBE NUMBER
YES
HAVE MICROSTROBE ENERGY VALUES BEEN DETERMINED ?
NO
DETERMINE MICROSTROBE ENERGY VALUES
YES
HAVE BINARY PULSE NUMBERS BEEN ASSIGNED ?
NO
ASSIGN BINARY PULSE NUMBERS
HAS A STROBE NUMBER BEEN DETERMINED ?
NO
DETERMINE A STROBE NUMBER
YES
TABLE COMPLETE
HAVE THE PRINTING PARAMETERS BEEN STORED IN MEMORY ?
NO
STORE SUPPLY PARAMETERS
YES
HAVE THE PRINTING PARAMETERS BEEN ACCESSED BY THE PROCESSOR ?
NO
ACCESS THE SUPPLY PARAMETERS
YES
PRINTING MAY BE PERFORMED

FIG. 2

FIG. 3

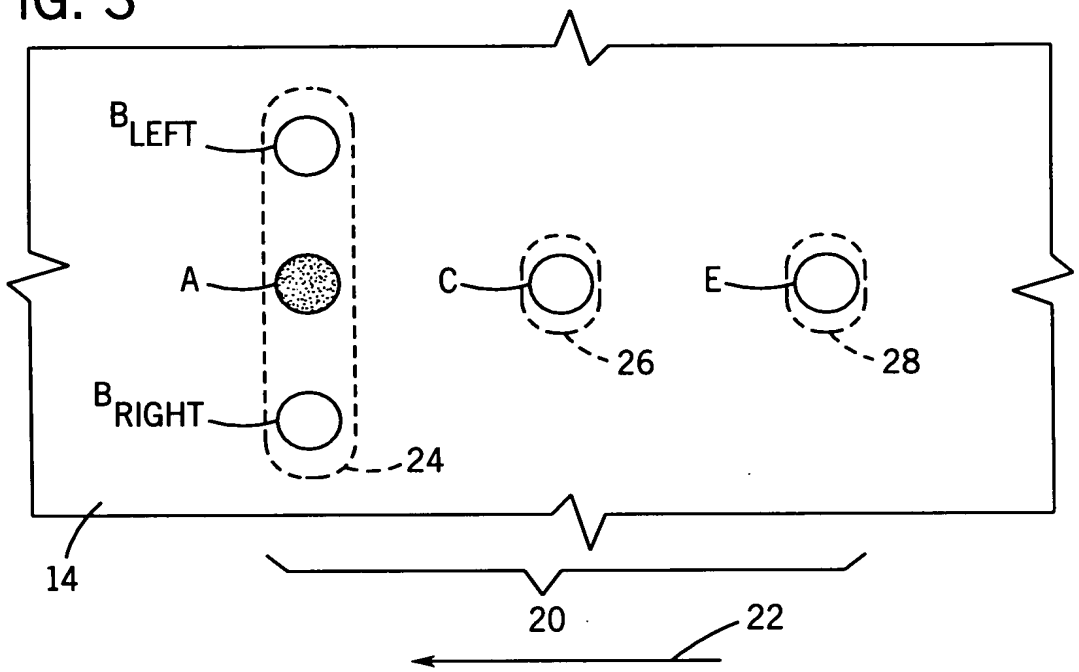
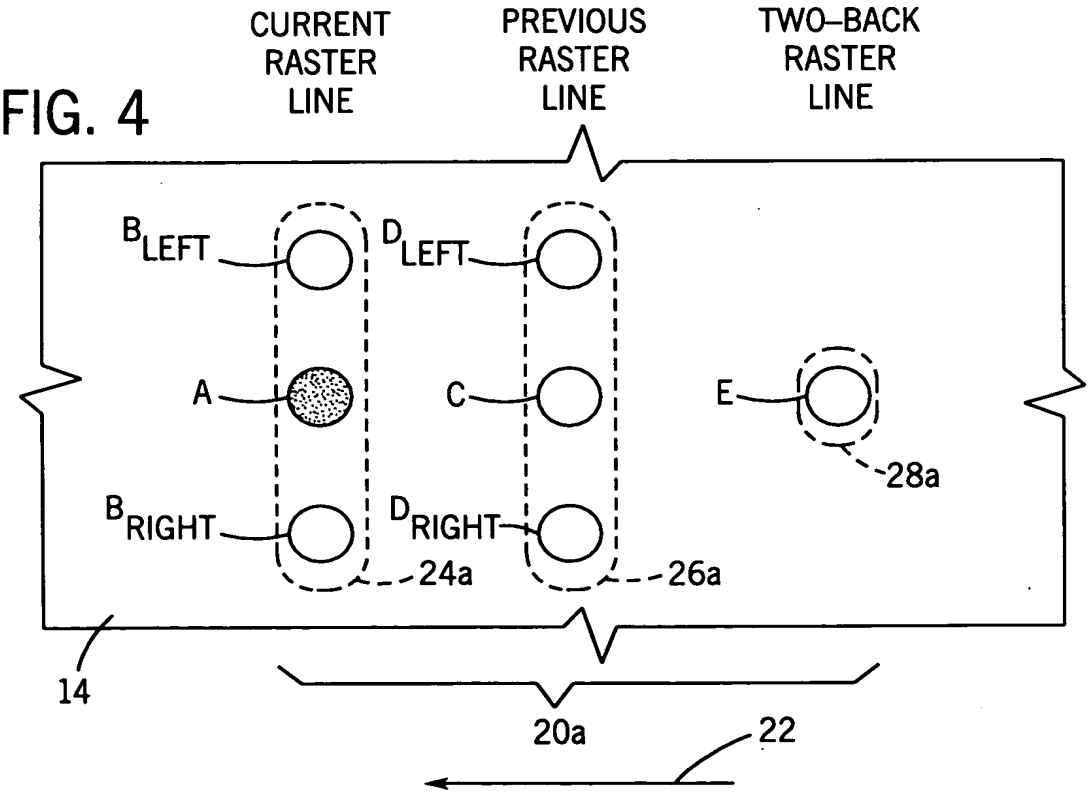

CURRENT RASTER LINE
PREVIOUS RASTER LINE
TWO–BACK RASTER LINE
B LEFT
A
B RIGHT
C
E
26
28
24
14
20
22

FIG. 4


CURRENT RASTER LINE
PREVIOUS RASTER LINE
TWO–BACK RASTER LINE
B LEFT
D LEFT
A
C
E
28a
B RIGHT
D RIGHT
24a
26a
14
20a
22

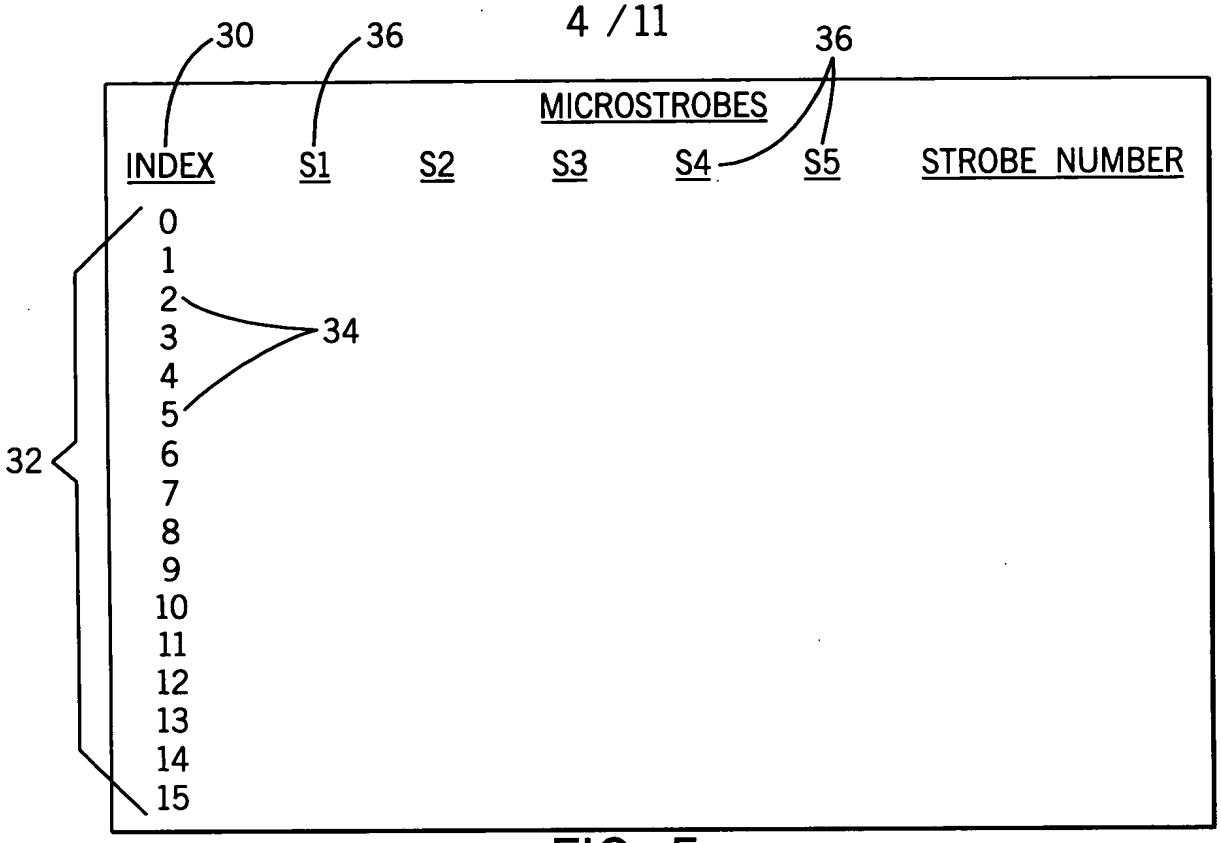

30
36
36
MICROSTROBES
INDEX
S1
S2
S3
S4
S5
STROBE NUMBER
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
34
32

FIG. 5

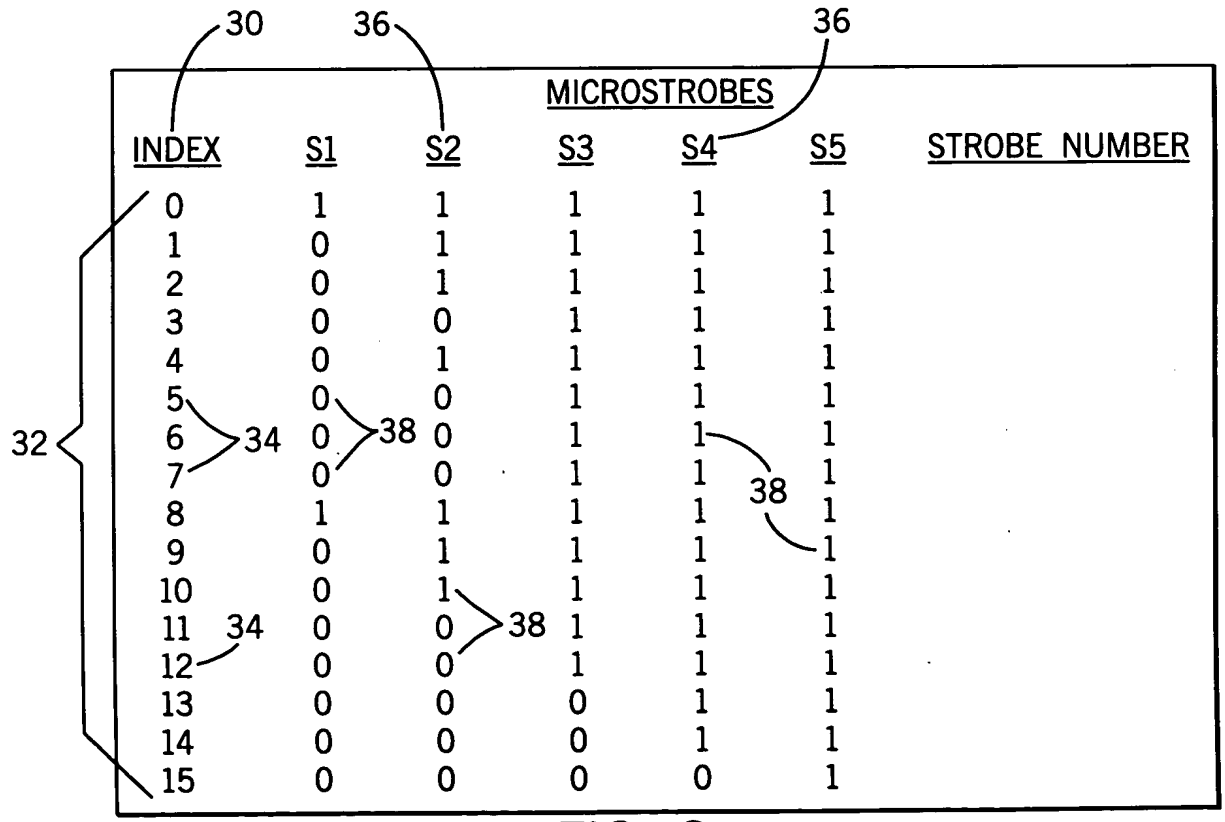

30
36
36
MICROSTROBES
INDEX
S1
S2
S3
S4
S5
STROBE NUMBER
0 1 1 1 1 1
1 0 1 1 1 1
2 0 1 1 1 1
3 0 0 1 1 1
4 0 1 1 1 1
5 0 0 1 1 1
6 0 0 1 1 1
7 0 0 1 1 1
8 1 1 1 1 1
9 0 1 1 1 1
10 0 1 1 1 1
11 0 0 1 1 1
12 0 0 1 1 1
13 0 0 0 1 1
14 0 0 0 1 1
15 0 0 0 0 1
34
38
38
38
34
32

FIG. 6

FIG. 7

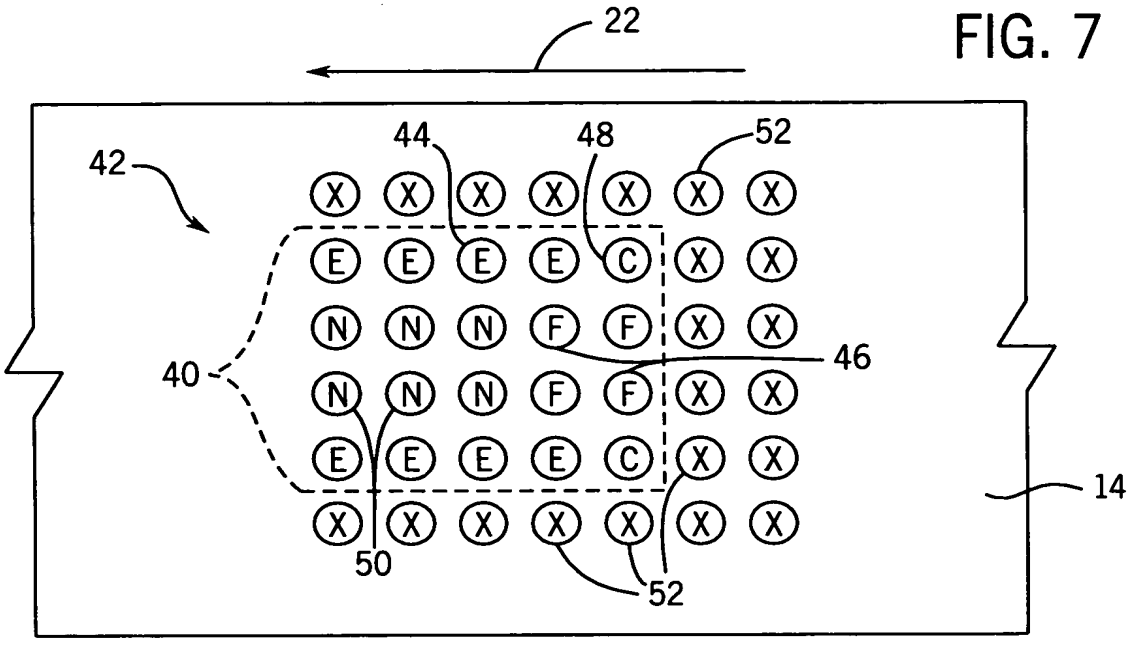
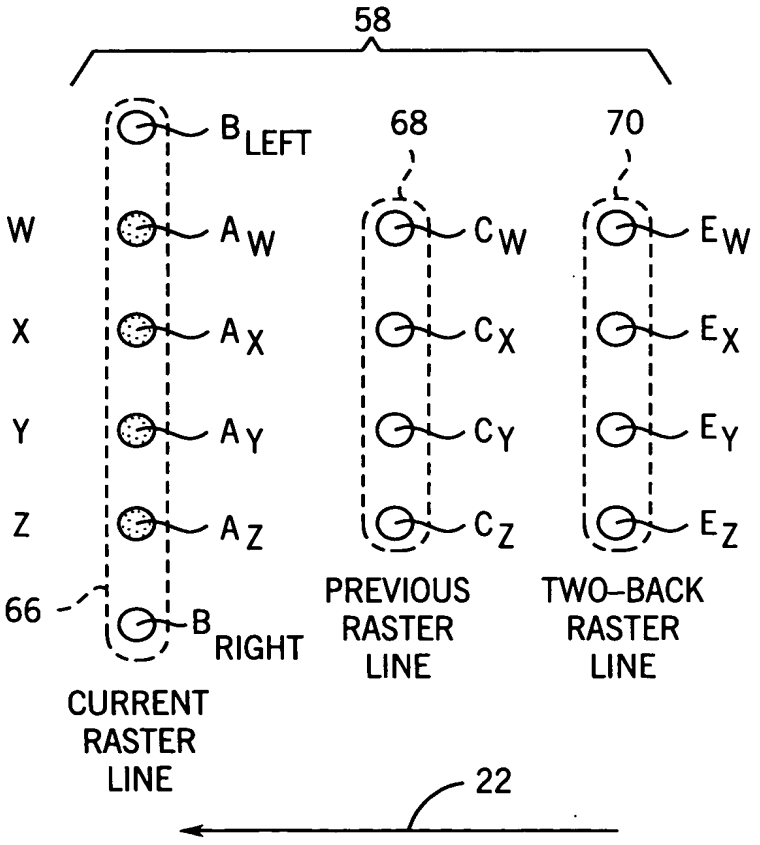

22
42
44
48
52
40
46
14
50
52

FIG. 11


58
B_{LEFT}
68
70
W
A_W
C_W
E_W
X
A_X
C_X
E_X
Y
A_Y
C_Y
E_Y
Z
A_Z
C_Z
E_Z
66
B_{RIGHT}
PREVIOUS RASTER LINE
TWO-BACK RASTER LINE
CURRENT RASTER LINE
22

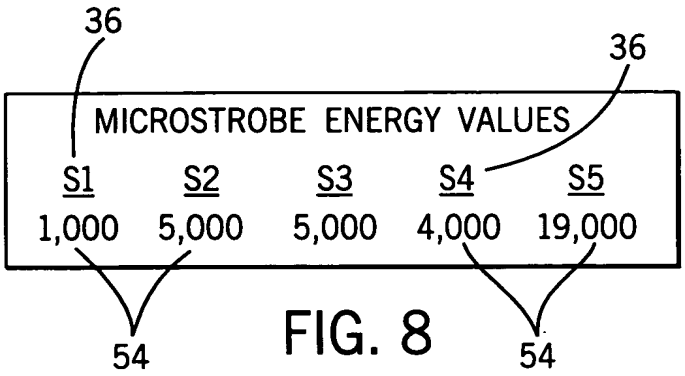

36
36
MICROSTROBE ENERGY VALUES
S1
S2
S3
S4
S5
1,000
5,000
5,000
4,000
19,000
54
54

FIG. 8

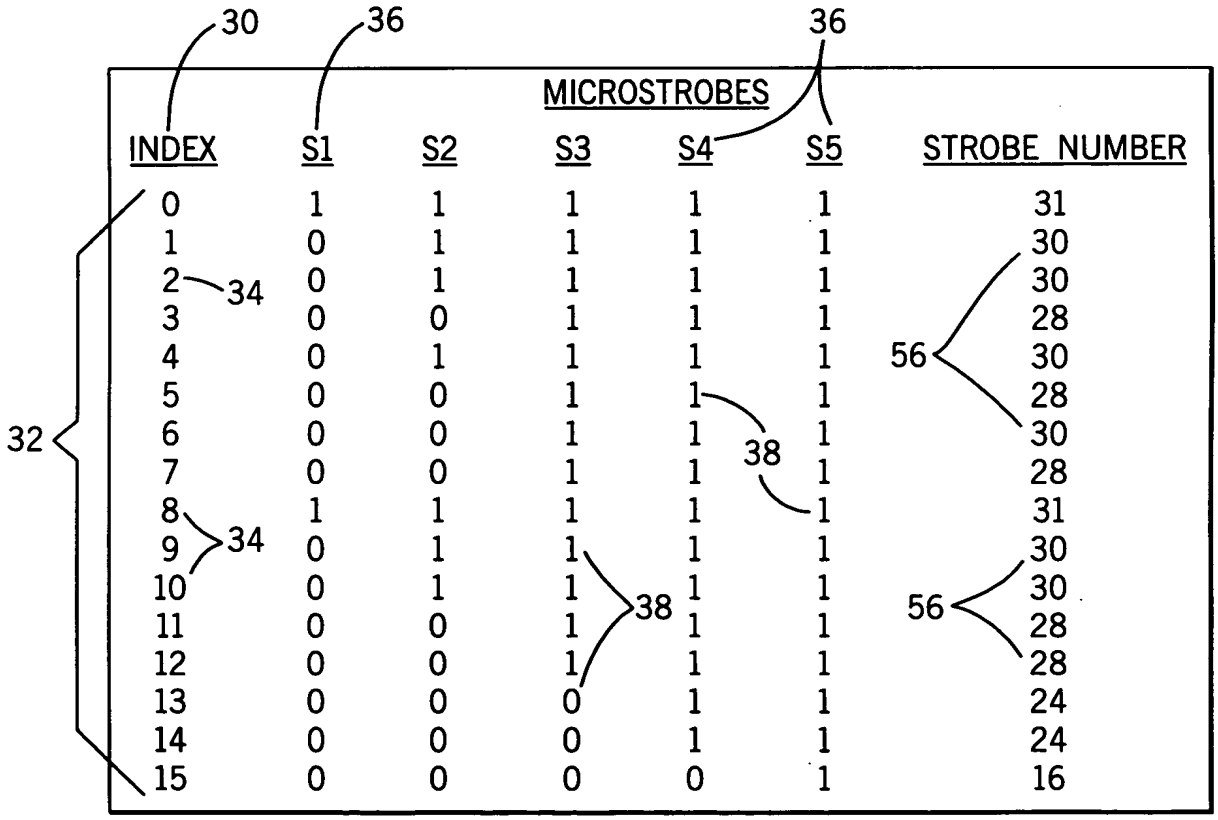

30
36
36
MICROSTROBES
INDEX
S1
S2
S3
S4
S5
STROBE NUMBER
32
34
34
38
38
56
56
0 1 1 1 1 1 31
1 0 1 1 1 1 30
2 0 1 1 1 1 30
3 0 0 1 1 1 28
4 0 1 1 1 1 30
5 0 0 1 1 1 28
6 0 0 1 1 1 30
7 0 0 1 1 1 28
8 1 1 1 1 1 31
9 0 1 1 1 1 30
10 0 1 1 1 1 30
11 0 0 1 1 1 28
12 0 0 1 1 1 28
13 0 0 0 1 1 24
14 0 0 0 1 1 24
15 0 0 0 0 1 16

FIG. 9

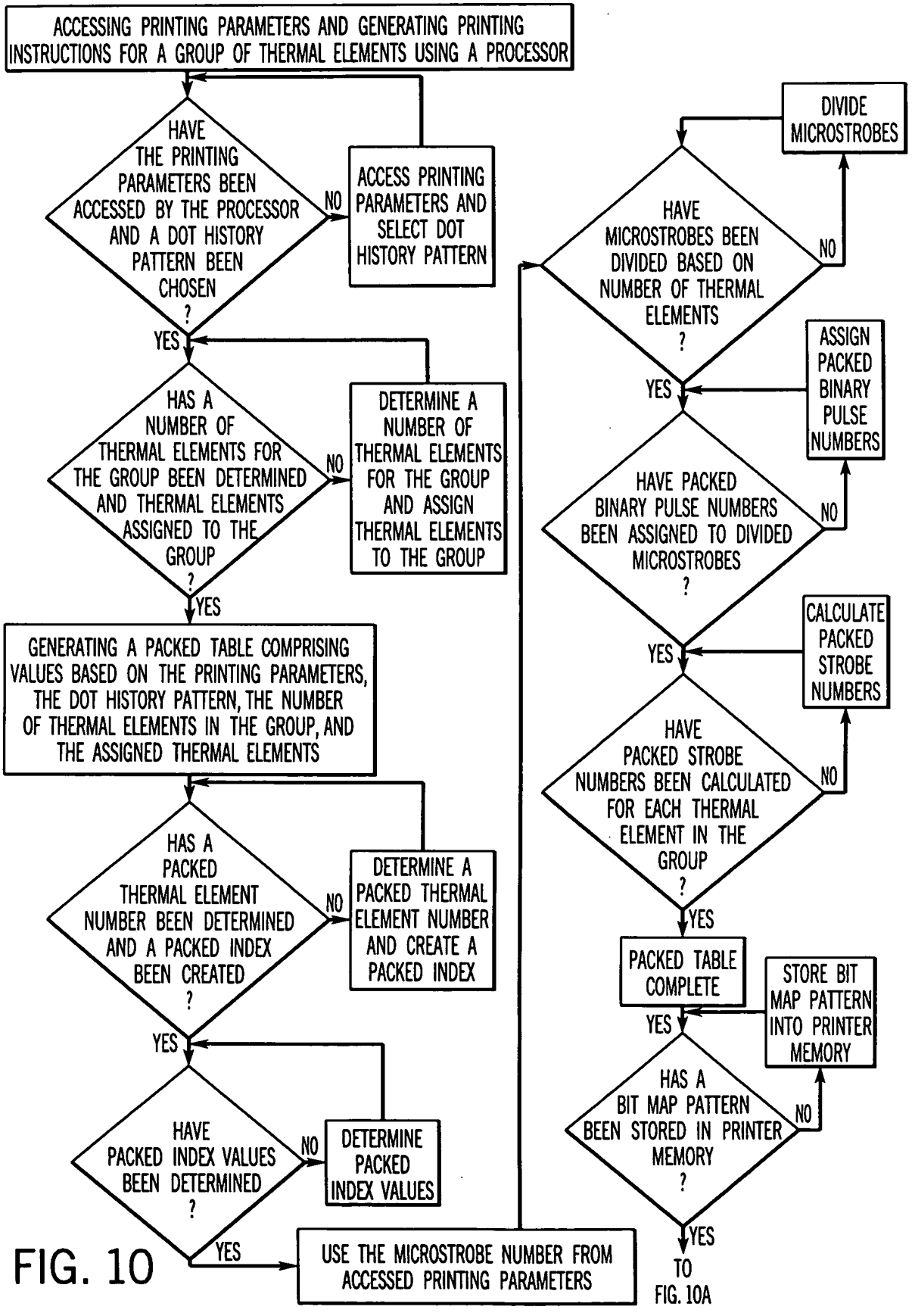

ACCESSING PRINTING PARAMETERS AND GENERATING PRINTING INSTRUCTIONS FOR A GROUP OF THERMAL ELEMENTS USING A PROCESSOR
HAVE THE PRINTING PARAMETERS BEEN ACCESSED BY THE PROCESSOR AND A DOT HISTORY PATTERN BEEN CHOSEN ?
NO
ACCESS PRINTING PARAMETERS AND SELECT DOT HISTORY PATTERN
YES
HAS A NUMBER OF THERMAL ELEMENTS FOR THE GROUP BEEN DETERMINED AND THERMAL ELEMENTS ASSIGNED TO THE GROUP ?
NO
DETERMINE A NUMBER OF THERMAL ELEMENTS FOR THE GROUP AND ASSIGN THERMAL ELEMENTS TO THE GROUP
YES
GENERATING A PACKED TABLE COMPRISING VALUES BASED ON THE PRINTING PARAMETERS, THE DOT HISTORY PATTERN, THE NUMBER OF THERMAL ELEMENTS IN THE GROUP, AND THE ASSIGNED THERMAL ELEMENTS
HAS A PACKED THERMAL ELEMENT NUMBER BEEN DETERMINED AND A PACKED INDEX BEEN CREATED ?
NO
DETERMINE A PACKED THERMAL ELEMENT NUMBER AND CREATE A PACKED INDEX
YES
HAVE PACKED INDEX VALUES BEEN DETERMINED ?
NO
DETERMINE PACKED INDEX VALUES
YES
USE THE MICROSTROBE NUMBER FROM ACCESSED PRINTING PARAMETERS
HAVE MICROSTROBES BEEN DIVIDED BASED ON NUMBER OF THERMAL ELEMENTS ?
NO
DIVIDE MICROSTROBES
YES
HAVE PACKED BINARY PULSE NUMBERS BEEN ASSIGNED TO DIVIDED MICROSTROBES ?
NO
ASSIGN PACKED BINARY PULSE NUMBERS
YES
HAVE PACKED STROBE NUMBERS BEEN CALCULATED FOR EACH THERMAL ELEMENT IN THE GROUP ?
NO
CALCULATE PACKED STROBE NUMBERS
YES
PACKED TABLE COMPLETE
YES
HAS A BIT MAP PATTERN BEEN STORED IN PRINTER MEMORY ?
NO
STORE BIT MAP PATTERN INTO PRINTER MEMORY
YES
TO FIG. 10A

FIG. 10

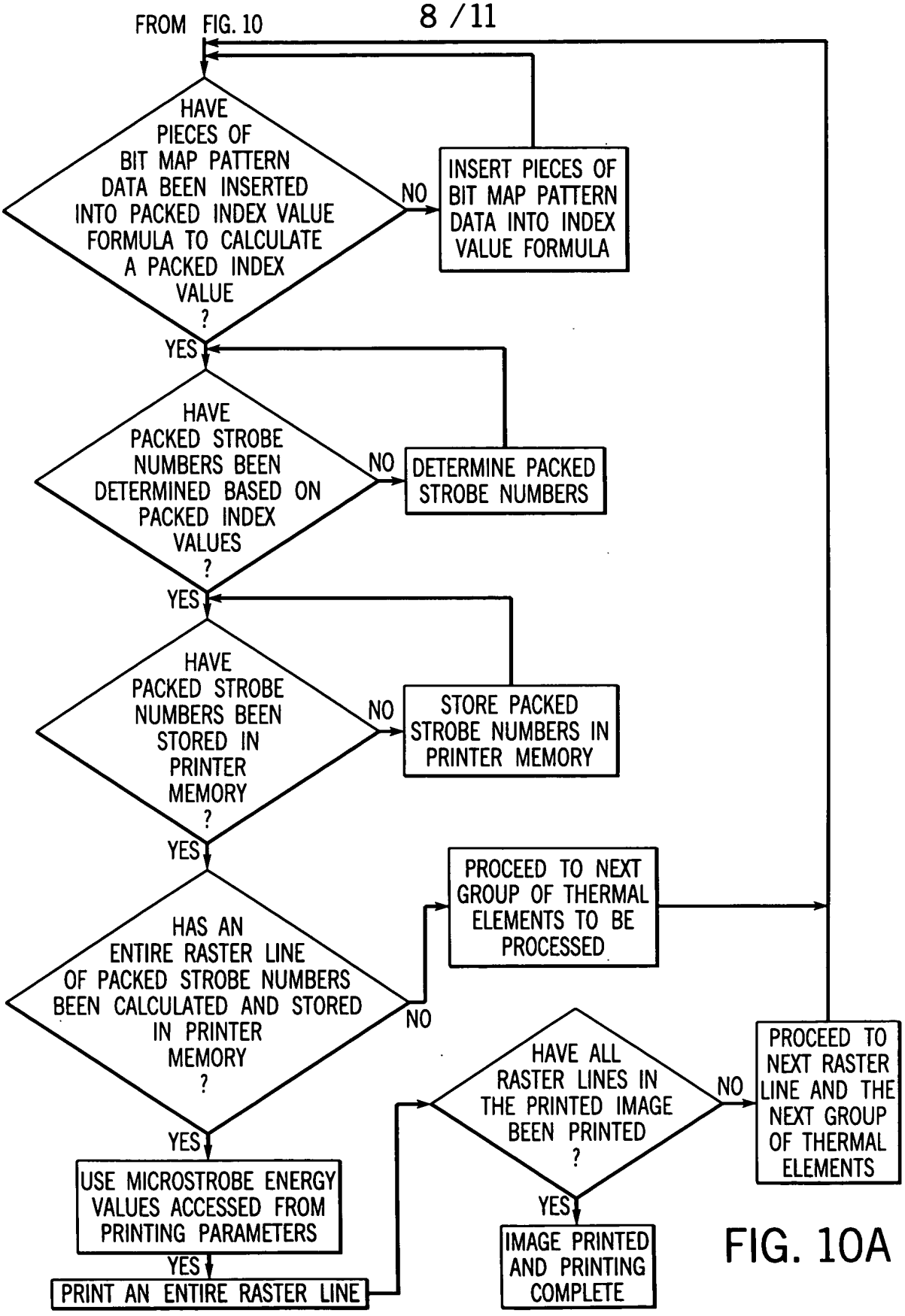

FROM FIG. 10
HAVE PIECES OF BIT MAP PATTERN DATA BEEN INSERTED INTO PACKED INDEX VALUE FORMULA TO CALCULATE A PACKED INDEX VALUE ?
NO
INSERT PIECES OF BIT MAP PATTERN DATA INTO INDEX VALUE FORMULA
YES
HAVE PACKED STROBE NUMBERS BEEN DETERMINED BASED ON PACKED INDEX VALUES ?
NO
DETERMINE PACKED STROBE NUMBERS
YES
HAVE PACKED STROBE NUMBERS BEEN STORED IN PRINTER MEMORY ?
NO
STORE PACKED STROBE NUMBERS IN PRINTER MEMORY
YES
HAS AN ENTIRE RASTER LINE OF PACKED STROBE NUMBERS BEEN CALCULATED AND STORED IN PRINTER MEMORY ?
NO
PROCEED TO NEXT GROUP OF THERMAL ELEMENTS TO BE PROCESSED
YES
USE MICROSTROBE ENERGY VALUES ACCESSED FROM PRINTING PARAMETERS
YES
PRINT AN ENTIRE RASTER LINE
HAVE ALL RASTER LINES IN THE PRINTED IMAGE BEEN PRINTED ?
NO
PROCEED TO NEXT RASTER LINE AND THE NEXT GROUP OF THERMAL ELEMENTS
YES
IMAGE PRINTED AND PRINTING COMPLETE

FIG. 10A

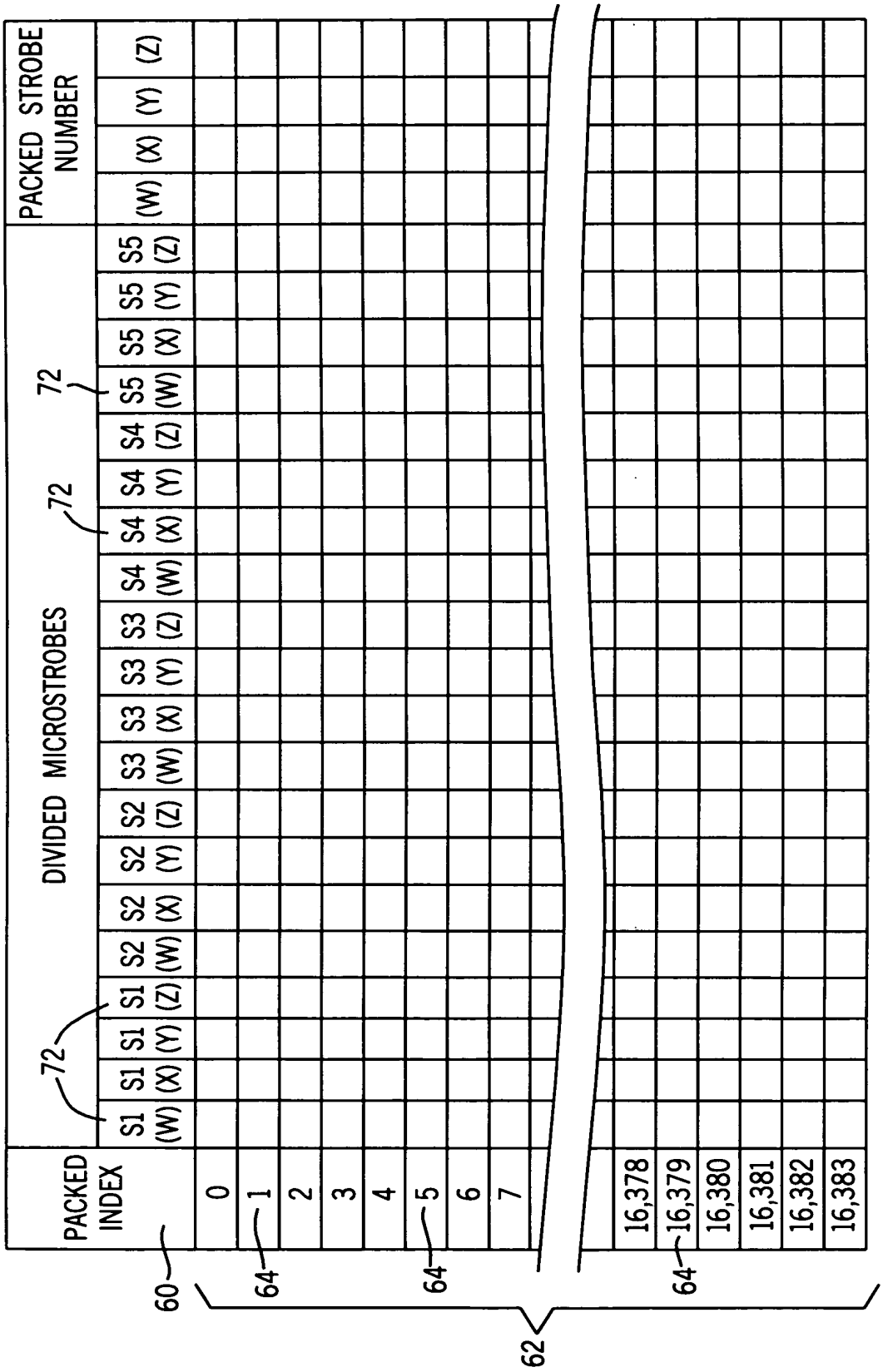
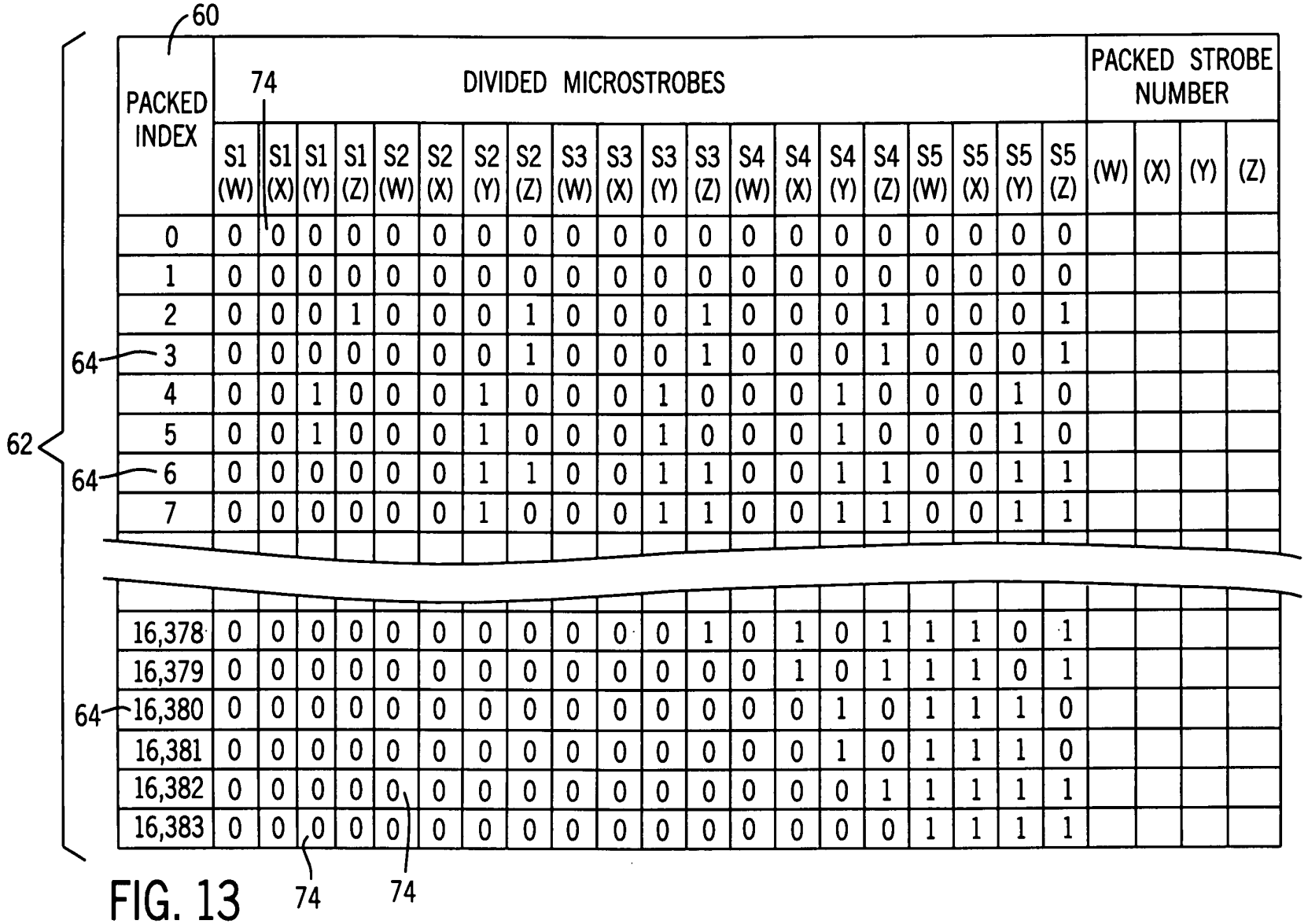

PACKED INDEX
DIVIDED MICROSTROBES
PACKED STROBE NUMBER
S1 (W)
S1 (X)
S1 (Y)
S1 (Z)
S2 (W)
S2 (X)
S2 (Y)
S2 (Z)
S3 (W)
S3 (X)
S3 (Y)
S3 (Z)
S4 (W)
S4 (X)
S4 (Y)
S4 (Z)
S5 (W)
S5 (X)
S5 (Y)
S5 (Z)
(W)
(X)
(Y)
(Z)
0
1
2
3
4
5
6
7
16,378
16,379
16,380
16,381
16,382
16,383
72
72
72
60
64
64
64
62

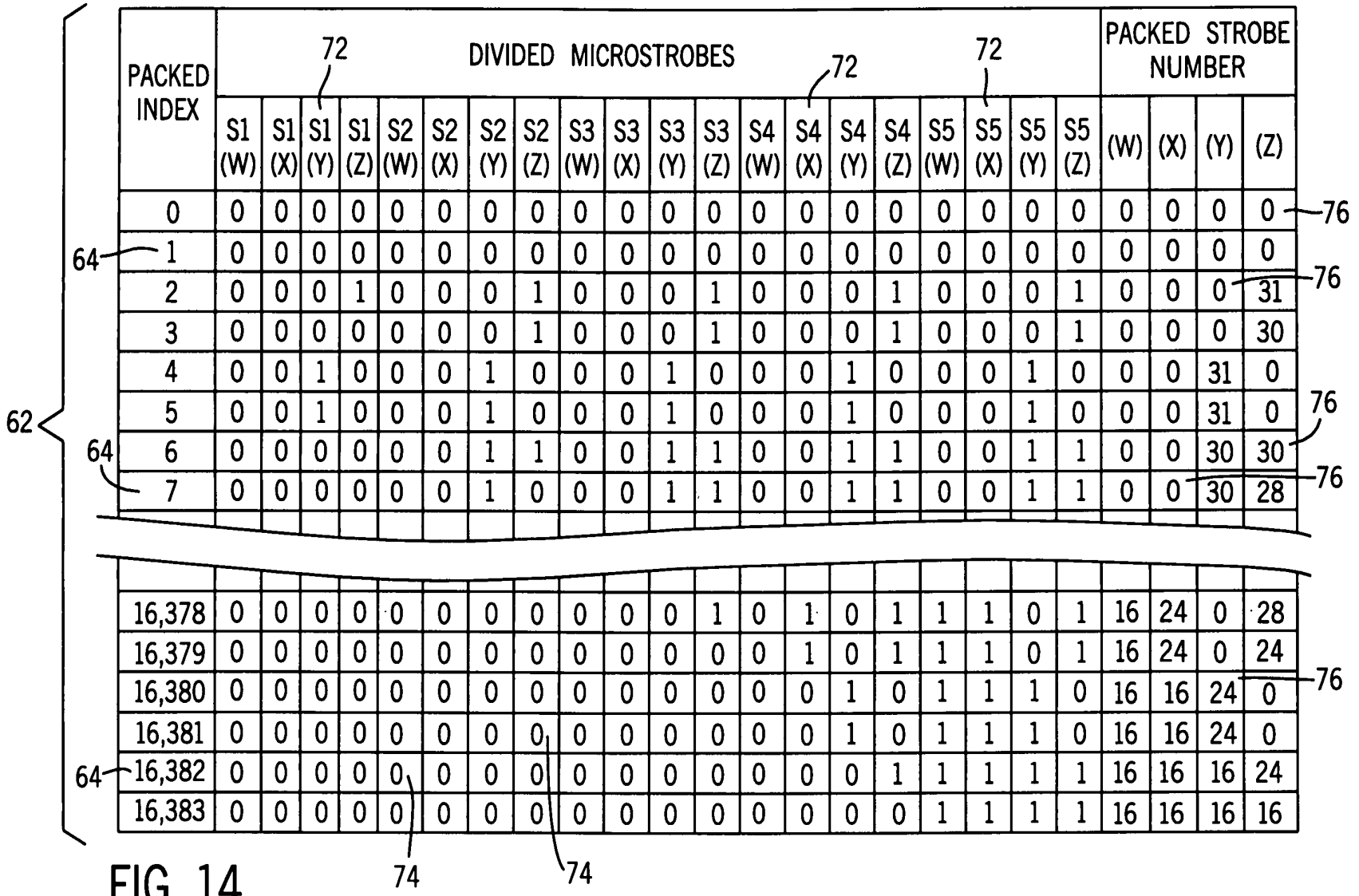
FIG. 12



PACKED INDEX	DIVIDED MICROSTROBES																				PACKED STROBE NUMBER			
	S1 (W)	S1 (X)	S1 (Y)	S1 (Z)	S2 (W)	S2 (X)	S2 (Y)	S2 (Z)	S3 (W)	S3 (X)	S3 (Y)	S3 (Z)	S4 (W)	S4 (X)	S4 (Y)	S4 (Z)	S5 (W)	S5 (X)	S5 (Y)	S5 (Z)	(W)	(X)	(Y)	(Z)
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
2	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1				
3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1				
4	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0				
5	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0				
6	0	0	0	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1				
7	0	0	0	0	0	0	1	0	0	0	1	1	0	0	1	1	0	0	1	1				
16,378	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	0	1				
16,379	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1				
16,380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0				
16,381	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0				
16,382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1				
16,383	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1				

FIG. 13

0965720 - 053402



PACKED INDEX	DIVIDED MICROSTROBES																				PACKED STROBE NUMBER			
	S1 (W)	S1 (X)	S1 (Y)	S1 (Z)	S2 (W)	S2 (X)	S2 (Y)	S2 (Z)	S3 (W)	S3 (X)	S3 (Y)	S3 (Z)	S4 (W)	S4 (X)	S4 (Y)	S4 (Z)	S5 (W)	S5 (X)	S5 (Y)	S5 (Z)	(W)	(X)	(Y)	(Z)
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	31
3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	30
4	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	31	0
5	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	31	0
6	0	0	0	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	30	30
7	0	0	0	0	0	0	1	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	30	28
16,378	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	0	1	16	24	0	28
16,379	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	16	24	0	24
16,380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	16	16	24	0
16,381	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	16	16	24	0
16,382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	16	16	16	24
16,383	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	16	16	16	16

FIG. 14

09653200 - 052102